NOTES ON A REMARKABLE IMMIGRATION OF LEPIDOPTERA INTO THE UNITED KINGDOM – APRIL 1985

By P. A. DAVEY*

At the beginning of April 1985 a notable influx of immigrant Lepidoptera into the U.K. occurred. Notes on some of the species are given in the Appendix. The principal species involved were *Cynthia cardui* (Linn.) and *Hyles lineata livornica* (Esp.). Although it is not unusual for *cardui* to be seen as singletons, large numbers are seldom recorded during the Spring months. The second species, *livornica*, is an irregular immigrant to this country and is most often recorded during the Summer months.

Two distinct and separate immigration peaks are apparent from the information available to date; the first between the 2nd and 10th April and the second between the 16th and 21st April. The weather during this three week period split into three distinct types:

a) tropical south to south-westerly (30.iii to 6.iv)
b) cyclonic polar south-west to north-westerly (7.iv to 14.iv)
c) anticyclonic tropical south-west to westerly (15.iv. to 20.iv).

As there was a significant gap between the two peaks it was decided to plot a backtrack for the first *livornica* recorded for each peak (the first insect recorded enables one to work the most realistic backtrack).

The backtrack for the first *livornica* is shown in Figure 1. Both curves represent backtracking with respect to wind direction and speed, and both commence at the capture time of 2100 hours on the 2nd April. One curve (●–●) assumes no flight speed for the insect (and can also be interpreted as a random orientation coupled with a constant flight speed of any magnitude). The second curve (x–x) assumes a ten knot downwind insect flight component added to the ambient wind. The steplength between adjacent symbols on any one curve is three hours to 0000 hours on 1st April and six hours to the end of the curve. At the midnight points, the two curves are connected by a dotted line for any given date.

The backtrack for the second *livornica* is shown in Figure 2. The constraints imposed upon the two curves are identical to those described for Figure 1. The capture time was 0300 hours on 17th April, and the steplength is three hours for the whole backtrack. It should be noted that this method of backtracking can only be used to provide a general indication of the nature of any immigration.

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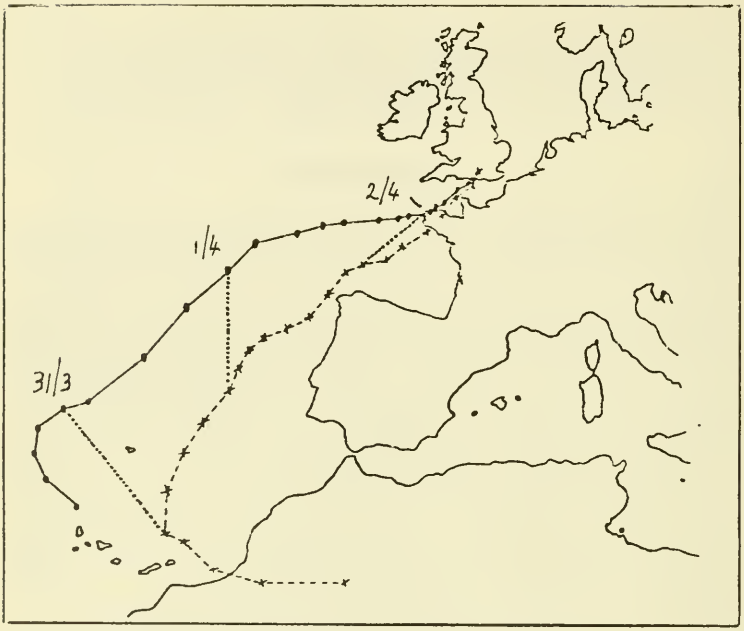

Figure 1. Backtrack for *livornica* taken at 2100 hours on 2/4/1985 near Haslemere.

In this analysis the following conditions were assumed:

a) insect orientation and flight speed were as described above.
b) continuous flight of the insect for a minimum of 90 hours prior to capture.
c) flight at sea level throughout.

From Figure 1 it appears that a likely source may have been the Canary Isles and/or that part of Africa adjacent to the Canaries. The weather in the area at that time was unusually warm, with light winds from the Sahara. (Midday temperatures in Tenerife between 30th March and 2nd April were 27°C, some 7°C above the early April norm). It is interesting that the ten knot curve (x—x) passes quite close to north-west Iberia, and both curves pass over Brittany. Figure 2 is less easy to interpret, with no indication of any low latitude source. A number of possible explanations can be advanced:

a) the insect was resident in the area of capture since the original influx (i.e. the second peak reflects the three distinct weather types previously described).
b) the insect flew on a shorter migration route from Brittany or the Biscay coast following a previous migration from the Canaries two weeks earlier.
c) the insect took up to two weeks to arrive via a protracted Atlantic route.

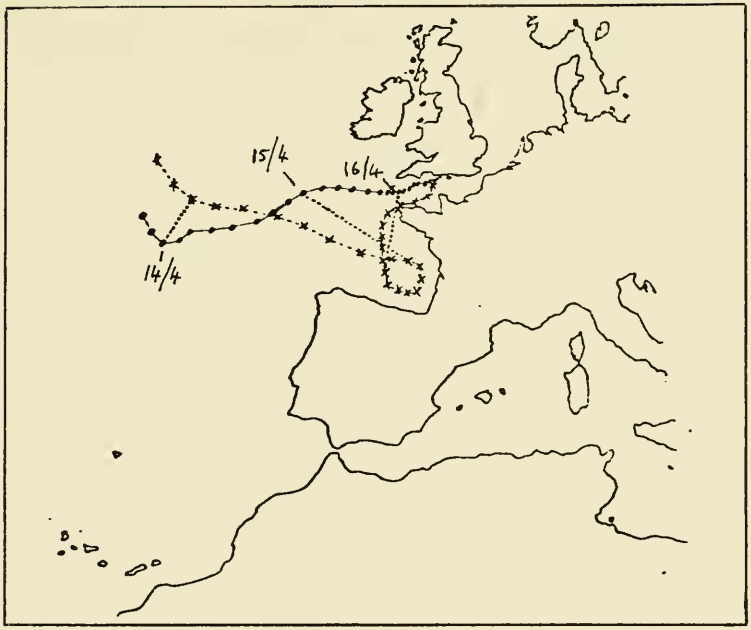

Figure 2. Backtrack for *livornica* taken at 0300 hours on 17/4/1985 near Swanage.

In conclusion it appears that the meteorological conditions were favourable for an influx of migrant Lepidoptera from the area of the Canaries or the adjacent African coast at the start of April 1985. It remains unclear whether there was a subsequent influx around the middle of the month. No meteorological evidence could be found to suggest an influx originating any further south than the north Iberian coast.

APPENDIX

By R. F. BRETHERTON* and J. M. CHALMERS-HUNT**

This is the largest and most interesting immigration of Lepidoptera in April which has been reported for many years. It is hoped to publish a full account in due course in the Migration Report for 1985. Readers who have not already done so are asked to let us have any records of immigrants or probable immigrants,

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